CHAPTER 15

ARTICLE 2

~~Section 64417. Siting Requirements~~

~~(a) A person operating a public water system shall notify the Department prior to making any financial commitment for or initiation of construction of a new public water system or increasing the capacity of an existing public water system. To the extent practicable, no part of a new or expanded facility shall be:~~

~~(1) Subject to pollution or contamination from any point or nonpoint sources.~~

~~(2) Subject to a significant risk from natural disasters which could cause a breakdown of the pubic water system or a portion thereof.~~

~~(3) Within the flood plain of a 100-year flood or lower than any recorded high tide, except for intake structures.~~

~~Authority: Sections 208 and 4010.1(h), Health and Safety Code~~

~~Reference: Sections 4010.1 (o), 4012, 4013 and 4019, Health and Safety Code~~

CHAPTER 16

~~ARTICLE 1~~

~~Section 64555. Definitions~~

~~(a) "Asphalt Institute Standard" means a standard or specification issued by the Asphalt Institute.~~

~~(b) "ASTM Standard" means a standard issued by the American Society for Testing and Materials (ASTM).~~

~~(c) "AWWA Standard" means a standard adopted by the American Water Works Association (AWWA).~~

~~(d) "Federal Specification" means a standard approved by the United States General Services Agency for use by federal agencies.~~

~~(e) "Flat Rate Water System" means a public water system where water deliveries to at least 50 percent of the service connections are not metered.~~

~~(f) "Metered Water System" means a public water system that is not a flat rate water system.~~

~~Authority: Sections 208 and 4010.1(h), Health and Safety Code~~

~~Reference: Sections 4010.1 (o), 4012, 4013 and 4019, Health and Safety Code~~

~~ARTICLE 2. GENERAL REQUIREMENTS~~

~~Section 64560. Basic Design~~

~~(a) Additions to or changes in distribution systems shall be designed and constructed to:~~

~~(1) Be free of structural and sanitary hazards.~~

~~(2) Protect the quality of the water delivered to users at all times.~~

~~(3) Protect the distribution system against contamination by backflow.~~

~~(4) Provide adequate size and capacity to meet the requirements of Sections 64562 and 64566.~~

~~(5) Withstand, with ample safety factors, the physical stresses imposed during normal operation.~~

~~(6) Minimize the effects of events such as power supply, equipment, and structural failures, earthquakes, fires, floods and sabotage that are reasonably foreseeable.~~

~~(7) Protect against unauthorized entry and/or vandalism.~~

~~(8) Protect against adverse effects in areas subject to freezing weather.~~

~~Authority: Sections 208 and 4010.1(h), Health and Safety Code~~

~~Reference: Sections 4010.1 (o), 4012, 4013 and 4019, Health and Safety Code~~

~~Section 64562. Quantity of Supply~~

~~(a) Sufficient water shall be available from the water sources and distribution reservoirs to supply adequately, dependably and safely the total requirements of all users under maximum demand conditions before agreement is made to permit additional service connections to a system.~~

~~(b)To ascertain this, first determine the total capacity of the existing source by procedures prescribed in section 64563 and determine the total storage volume of the existing distribution reservoirs. Then determine the needed source capacity and the needed storage volume by procedures prescribed in Section 64564. The total available source capacity shall not be less than the needed source capacity.~~

~~(c) The requirements of this section shall apply to an entire public water system and to each pressure zone within a public water system.~~

~~(1) Requirements for an entire public water system shall be determined for the total source capacity, total storage volume and the total number of service connections.~~

~~(2) Requirements for a particular pressure zone shall be determined from the total water supply available from the water sources and interzonal transfers directly supplying the zone, from the total storage volume within the zone and from the number of service connections within the zone.~~

~~Authority: Sections 208 and 4010.1(h), Health and Safety Code~~

~~Reference: Sections 4010.1 (o), 4012, 4013 and 4019, Health and Safety Code~~

~~Section 64563. Procedures for Determining Source Capacity~~

~~(a) The source capacity of a well shall be based on the sustained yield of the well or pump output, whichever is less.~~

~~(1) Sustained yield of a well shall be determined from a pump test or from historical records.~~

~~(2) The conditions of a pump test used to determine sustained yield of a well shall be acceptable to the Department and shall include:~~

~~(A) Constant rate of water discharge from the well during the pump test~~

~~(B) Continuation of the pump test until at least four consecutive measurements of water level drawdown in the well and the elapsed time since the beginning of the pump test yield a straight line when the drawdown is plotted against the logarithm of the elapsed time.~~

~~(b) The source capacity of a surface water supply or a spring shall be the lowest anticipated daily yield based on adequately supported and documented data.~~

~~(c) The source capacity of a purchased water connection between two public water systems shall be included in the total source capacity of the purchaser if the purchaser has sufficient storage or standby source capacity to meet user requirements during reasonable foreseeable shutdowns by the supplier.~~

~~(d) Where the capacity of a source varies seasonally, the source capacity shall be the capacity at the time of maximum day demand.~~

~~Authority: Sections 208 and 4010.1(h), Health and Safety Code~~

~~Reference: Sections 4010.1 (o), 4012, 4013 and 4019, Health and Safety Code~~

~~Section 64564. Procedures for Determining Needed Source Capacity and Needed Storage Volume~~

~~(a) Whenever possible, needed source capacity and needed storage volume shall be determined from existing water use records of the water system.~~

~~The records used shall clearly indicate total source capacity, total storage volume and maximum day demand of previous years.~~

~~The existing records of the water system may be supplemented as needed by the records of a similar water system acceptable to either the Department or a qualified registered engineer.~~

~~(b) When the existing records of the water system are inadequate to determine these values and no records of a similar water system can be found to supplement the existing records, the maximum day demand, the needed source capacity and the needed storage volume for typical residential and general commercial areas (without provisions for fire flow) shall be determined as follows:~~

~~(1) Determine the maximum day demand (Q[o]) from Chart 1 or Chart 2.~~

~~(2) When the total capacity of the existing sources equals the maximum day demand (Q[o]), the needed storage volume (V[o]) to meet peak demand during the day shall be determined from Chart 3 or Chart 4.~~

~~(3) When the total storage volume of the existing reservoirs (V) is less than the needed storage volume (V[o]), the existing sources shall be supplemented so that the needed source capacity (Q) is met. For a metered water system, $Q = Q[o] (2.5-1.5V/V[o])$ or for a flat rate water system, $Q = Q[o] (2-V/V[o])$.~~

~~(c) The needed source capacity and needed storage volume determined under (b) may be modified, with the approval of the Department, to reflect local conditions such as climate, community type and kinds of users. Unless the Department's written approval is obtained, the needed source capacity shall not be less than the maximum day demand.~~

~~(d) The data used and the calculation made by the water supplier to determine whether sufficient water is available to accommodate additions to the systems must be kept and are subject to the Department review and approval at its discretion.~~

~~Authority: Sections 208 and 4010.1(h), Health and Safety Code~~

~~Reference: Sections 4010.1 (o), 4012, 4013 and 4019, Health and Safety Code~~

~~Section 64566. System Pressure~~

~~(a) Changes in distribution systems shall be designed to maintain an operating pressure at all service connections of not less than 20 pounds per square inch gauge (psig) (140 kiloPascals gauge (kPag) under the following demand conditions:~~

~~(1) User maximum hour demand.~~

~~(2) User average day demand plus design fire flow.~~

~~(b) In a public water system supplying users at widely varying elevations, a water supplier may furnish a service to a user which does not comply with (a) if the user is fully advised of the conditions under which minimum service may be expected and the user's agreement is secured in writing. This waiver shall be applicable only to individual service connections.~~

~~(c) Water mains shall be designed to have at least five psig (35 kPag) pressure throughout any buried length of the main except when the main is removed from service for repairs or maintenance. This requirement shall not apply to short lengths of water main near reservoir inlets and outlets provided;~~

~~(1) The water main is on premises owned, leased or controlled by the water supplier; or~~

~~(2) The prior review and written approval the of the Department is obtained.~~

~~Authority: Sections 208 and 4010.1(h), Health and Safety Code~~

~~Reference: Sections 4010.1 (o), 4012, 4013 and 4019, Health and Safety Code~~

~~Section 64568. Conditions for Adding Service Connections~~

~~A new service connection may be added to a distribution system only if the water system will comply with Section 64562 after the new service connection is added and adding the new service connection will not cause pressure at an existing service connection to be reduced below the standards set in Section 64566.~~

~~Authority: Sections 208 and 4010.1(h), Health and Safety Code~~

~~Reference: Sections 4010.1 (o), 4012, 4013 and 4019, Health and Safety Code~~

~~Section 64570. Internal Combustion Engines~~

~~(a) Where water cooling jackets for internal combustion engines are connected to water mains, the jacket shall be designed so that the water pressure inside the water main at the cooling jacket will at all times be greater than the engine coolant pressure.~~

~~(b) Backflow protection of the public water system shall be provided wherever makeup water is supplied to the cooling system of an internal combustion engine.~~

~~Authority: Sections 208 and 4010.1(h), Health and Safety Code~~

~~Reference: Sections 4010.1 (o), 4012, 4013 and 4019, Health and Safety Code~~

~~ARTICLE 3. DISTRIBUTION RESERVOIRS~~

~~Section 64600. Basic Design of Distribution Reservoirs~~

~~(a) Distribution reservoirs shall be covered.~~

~~(b) Vents, overflows, drain outlets and other reservoir openings shall be located and constructed to protect the water stored in the reservoir from contamination. Vents and overflows shall be screened. Vents shall not open upward. Overflows shall be large enough to dispose of reservoir overflow rates equal to the maximum reservoir filling rate~~

~~(c)Provisions shall be made to facilitate removal of floating material from the free water surface and for dewatering the reservoir.~~

~~(d) Outlets shall be designed and constructed to minimize movement of sediment from the reservoir floor to the distribution system water mains.~~

~~(e) Provisions shall be made for isolating reservoirs and appurtenant facilities from the distribution system without causing violation of Section 64566.~~

~~(f) Unless the Department's approval is obtained, distribution reservoir sites shall not be used for nonwater works purposes that would:~~

~~(1) Result in unrestricted public access.~~

~~(2) Create a contamination hazard.~~

~~(g) Reservoirs shall be disinfected and sampled for bacteriological quality in accordance with the procedures described in "Methods for Disinfecting Tanks and Reservoirs," American Water Works Association Journal, 71(1):49-50 (January 1979).~~

~~Authority: Sections 208 and 4010.1(h), Health and Safety Code~~

~~Reference: Sections 4010.1 (o), 4012, 4013 and 4019, Health and Safety Code~~

~~Section 64602. Subsurface Distribution Reservoirs~~

~~(a) Subsurface distribution reservoirs shall be lined and shall be located:~~

~~(1) Above maximum anticipated ground water level.~~

~~(2) At least 50 feet (15 meters) from the nearest sewer and at least 150 feet (45 meters) from all other sewerage facilities.~~

~~(b) The land adjacent to a subsurface distribution reservoir shall be graded to route surface water away from the reservoir.~~

~~Authority: Sections 208 and 4010.1(h), Health and Safety Code~~

~~Reference: Sections 4010.1 (o), 4012, 4013 and 4019, Health and Safety Code~~

~~Section 64604. Corrosion Protection~~

~~Paints or other protective coatings shall comply with AWWA Standard D102-78.~~

~~Authority: Sections 208 and 4010.1(h), Health and Safety Code~~

~~Reference: Sections 4010.1 (o), 4012, 4013 and 4019, Health and Safety Code~~

~~ARTICLE 4. PUMPING STATIONS~~

~~Section 64612. Water Sealed Pumps~~

~~Seal water for water sealed pumps shall meet the water quality requirements of the Domestic Water Quality and Monitoring Regulations, Title 22, California Administrative Code, Chapter 15. Adequate drainage shall be provided for disposal of used seal water.~~

~~Authority: Sections 208 and 4010.1(h), Health and Safety Code~~

~~Reference: Sections 4010.1 (o), 4012, 4013 and 4019, Health and Safety Code~~

ARTICLE 5. WATER MAINS AND APPURTENANCES

Section 64622. Water Main Materials

(a) Water main materials shall meet the applicable standards listed in Table I.

(b) Cast iron and ductile iron pipe shall be cement mortar lined in accordance with AWWA Standard C104/A21.4-80.

(c) Steel pipe shall be protected from internal and external corrosion. Table II lists various acceptable protective coatings and linings with appropriate standards.

Table 1
Material Standards

Pipe Material	Standard
Asbestos–Cement	AWWA C400-80 or C402-77
Cast Iron	AWWA C106-75
Ductile Iron	AWWA C151/A21.51-81
Steel	AWWA C200-80
Copper	AWWA C800-66
Concrete	AWWA C300-82, C301-79, C302-74, or C303-78
Polybutylene	AWWA C902-78
Polyethylene	AWWA C901-78
Polyvinyl Chloride	AWWA C900-81
Glass Reinforced Thermosetting Resin	AWWA C950-81

Table II
Steel Pipe Coatings and Linings

Type of Coating or Lining	Standard
Cement Mortar Coating or Lining	AWWA C205-80 or Federal Specification SS-P-385a
Coat Tar Coating, Lining or Wrapping	AWWA C203-78
Asphalt Mastic Coating	Asphalt Institute M-2 CS-96
Extruded Plastic Coating	Federal Specification

	L-C-530B (1972)
Rubber-Alkyd Paint Coating	AWWA C204-75
Cold-Applied Tape Coating	AWWA C209-76
Coal Tar-Epoxy Coating	AWWA C210-78
Asphalt Coating and Wrapping	Standard Specifications for Public Works Construction (1973), Section 207-10.4.4

Authority: Sections 208 and 4010.1(h), Health and Safety Code

Reference: Sections 4010.1 (o), 4012, 4013 and 4019, Health and Safety Code

~~Section 64624. Water Main Selection and Installation~~

~~(a) Steel pipe shall be selected and installed in accordance with American Water Works Association (AWWA) Manual M-11 (1964), "Steel Pipe-Design and Installation." The design shall comply with Sections 6.1 and 6.2 of the manual, except that the minimum design pressure shall be at least the maximum anticipated system pressure, but in no case less than 150 psig (1,030 kPag).~~

~~(b) Asbestos-cement, cast iron and ductile iron pipe shall be selected and installed in accordance with the standards listed in Table III.~~

~~(c) Polyvinyl chloride pipe shall be selected and installed in accordance with Appendix A of AWWA Standard C900-81.~~

~~(d) Polybutylene pipe shall be selected and installed in accordance with Appendix A of AWWA Standard C902-81~~

~~(e) Polyethylene pipe shall be selected and installed in accordance with Appendix A of AWWA Standard C901-81.~~

~~(f) Plastic pipe shall not be used in areas subject to contamination by petroleum distillates.~~

~~Table III~~
~~Pipe Selection and Installation Standards~~

~~Type of Pipe~~	~~Standards~~
~~Asbestos-Cement~~	~~AWWA C401-83, C403-78 and C603-78~~
~~Cast Iron~~	~~AWWA C600-82~~
~~Ductile Iron~~	~~AWWA C150/A21.5-81 and C600-82~~

~~Authority: Sections 208 and 4010.1(h), Health and Safety Code~~

~~Reference: Sections 4010.1 (o), 4012, 4013 and 4019, Health and Safety Code~~

~~Section 64626. Layout of Water Mains~~

~~(a) Water mains should be laid out only in segmented grids and loops and should be located within streets. Dead-end water mains shall be installed only if:~~

~~(1) Looping or gridding is impractical due to topography, geology, pressure zone boundaries, unavailability of easements or locations of users; or~~

~~(2) The main is to be extended in the near future and the planned extension will eliminate the dead-end conditions.~~

~~Authority: Sections 208 and 4010.1(h), Health and Safety Code~~

~~Reference: Sections 4010.1 (o), 4012, 4013 and 4019, Health and Safety Code~~

~~Section 64628. Minimum Water Main Diameter and Length of Run~~

~~(a) Water mains shall have a nominal inside diameter of at least four inches (100 mm).~~

~~(b) Dead-end water mains exceeding 1,000 feet (300 meters) in length shall be constructed of pipe with a nominal inside diameter of at least 6 inches (150mm).~~

~~(c) Dead-end water mains exceeding 2,000 feet (600 meters) in length shall be constructed of pipe with a nominal inside diameter of at least 8 inches (200 mm).~~

~~(d) The requirements of (a), (b) and (c) shall not apply to water main installations meeting one of the following criteria:~~

~~(1) The installation is designed under the direction of a qualified registered engineer to meet the requirements of Section 64566.~~

~~(2) The installation is approved by the Department prior to construction.~~

~~Authority: Sections 208 and 4010.1(h), Health and Safety Code~~

~~Reference: Sections 4010.1 (o), 4012, 4013 and 4019, Health and Safety Code~~

~~Section 64630. Water Main Installation~~

~~(a) Water mains shall be installed below the frost line or shall otherwise be protected to prevent freezing.~~

~~(b) Water mains shall not have less than 30 inches (0.75 meters) of cover over the top of the pipe except where necessary to avoid underground obstructions or rocky conditions.~~

~~(c) Water mains shall be installed at least:~~

~~(1) Ten feet (3 meters) horizontally from and 1 foot (0.3 meters) higher than sanitary sewers located parallel to the main.~~

~~(2) One foot (0.3 meters) higher than sanitary sewers crossing the main.~~

~~(3) Ten feet (3 meters), and preferably 25 feet (7.5 meters), horizontally from sewage leach fields, cesspools, seepage pits and septic tanks.~~

~~(d) Separation distances specified in (c) shall be measured from the nearest edges of the facilities.~~

~~(e) Where the requirements of (c) and (d) cannot be met due to topography, inadequate right-of-way or easements or conflicts with other provisions of these regulations, lesser separation is permissible if:~~

~~(1) The water main and the sewer are located as far apart as feasible within the conditions listed above.~~

~~(2) The water main and the sewer are not installed within the same trench.~~

~~(3) The water main is appropriately constructed to prevent contamination of the water in the main by sewer leakage.~~

~~(f) Water mains shall be disinfected according to AWWA Standard C601-81 before being place in service.~~

~~(g) Installation of water mains near the following sources of potential contamination shall be subject to written approval by the Department on a case-by-case basis:~~

~~(1) Storage ponds or land disposal sites for waste water or industrial process water containing toxic materials or pathogenic organisms.~~

~~(2) Solid waste disposal sites.~~

~~(3) Facilities such as storage tanks and pipelines where malfunction of the facility would subject the water in the main to toxic or pathogenic contamination.~~

~~Authority: Sections 208 and 4010.1(h), Health and Safety Code~~

~~Reference: Sections 4010.1 (o), 4012, 4013 and 4019, Health and Safety Code~~

~~Section 64632. Water Main Valve Locations~~

~~Sufficient valves shall be provided on water mains to minimize inconvenience and sanitary hazards during repairs. In general, valves on water mains of 12 inches (300 meters) can be isolated by valve closures.~~

~~Authority: Sections 208 and 4010.1(h), Health and Safety Code~~

~~Reference: Sections 4010.1 (o), 4012, 4013 and 4019, Health and Safety Code~~

~~Section 64634. Water Main Valve Construction Standards~~

~~(a) Water main valves of the types listed in Table IV shall conform to the standards shown in Table IV.~~

~~(b) A valve box shall be installed over each valve stem to aid in locating and operating the valve.~~

~~Table IV~~
~~Water Main Valve Construction Standards~~

~~Type of Valve~~	~~Construction Standard~~
~~Gate Valve~~	~~AWWA C550-80~~
~~Butterfly Valve~~	~~AWWA C504-80~~
~~Ball Valve~~	~~AWWA C507-73~~
~~Swing Check Valve~~	~~AWWA C508-82~~

~~Authority: Sections 208 and 4010.1(h), Health and Safety Code~~

~~Reference: Sections 4010.1 (o), 4012, 4013 and 4019, Health and Safety Code~~

~~Section 64636. Air and Vacuum Relief and Air Release Valves~~

~~(a) Vent openings for air and vacuum relief and air release valves shall be:~~

~~(1) Extended at least one foot (0.3 meters) above grade and above maximum recorded high water.~~

~~(2) Provided with a screened, downward facing vent opening.~~

~~(b) Where the requirements of (a) (1) cannot be practicably met, vent openings may be located in a subsurface chamber or pit under the following conditions:~~

~~(1) The pit is adequately drained.~~

~~(2) The pit drain is not connected by pipe or other closed conduit to a sewer or storm drain without an air gap separation.~~

~~Authority: Sections 208 and 4010.1(h), Health and Safety Code~~

~~Reference: Sections 4010.1 (o), 4012, 4013 and 4019, Health and Safety Code~~

~~Section 64638. Water Main Joints~~

~~Joints and appurtenances shall safely withstand the same working pressures for which the water main is designed. Jute shall not be used as a backup gasket material.~~

~~Authority: Sections 208 and 4010.1(h), Health and Safety Code~~

~~Reference: Sections 4010.1 (o), 4012, 4013 and 4019, Health and Safety Code~~

~~Section 64640. Fire Hydrants~~

~~Fire hydrant laterals shall be provided with shutoff valves.~~

~~Authority: Sections 208 and 4010.1(h), Health and Safety Code~~

~~Reference: Sections 4010.1 (o), 4012, 4013 and 4019, Health and Safety Code~~

~~Section 64642. Flushing Valves and Blowoffs~~

~~(a) A flushing valve or blowoff shall be installed at the end of each dead-end water main where stagnant conditions are likely to develop.~~

~~(b) Flushing valves and blowoffs shall be capable of establishing the minimum continuous flushing flow in the main indicated by Table V.~~

~~(c) Flushing valves and blowoffs shall not discharge to a sewer without an air gap separation.~~

~~Table V~~
~~Minimum Water Main Flushing Flow~~

~~Normal Inside Diameter~~		~~Minimum Flushing Flow~~	
~~Inches~~	~~Millimeters~~	~~Gallons/Minute~~	~~Liters/Second~~
~~2~~	~~50~~	~~25~~	~~1.5~~
~~3~~	~~75~~	~~50~~	~~3.4~~
~~4~~	~~100~~	~~100~~	~~6.3~~
~~6~~	~~150~~	~~225~~	~~14~~
~~8~~	~~200~~	~~400~~	~~25~~
~~10~~	~~250~~	~~600~~	~~38~~

~~Authority: Sections 208 and 4010.1(h), Health and Safety Code~~

~~Reference: Sections 4010.1 (o), 4012, 4013 and 4019, Health and Safety Code~~

~~Section 64644. Service Connection Pipe~~

~~Service connection pipe and fittings shall be designed for cold water working pressures of not less than 150 psig (1,030 kPag). Copper tubing shall be commercial designation type K or L. Plastic tubing and fittings shall be products tested and certified as suitable for use in potable water piping systems by the National Sanitation Foundation Testing Laboratory, the Canadian Standards Association Testing Laboratory or another testing agency acceptable to the Department.~~

ARTICLE 1. DEFINITIONS

Section 64551.10 Distribution system.

"Distribution system" means all physical parts of the water system, including pipes, valves, pumping stations, storage tanks or reservoirs, and user service lines, that are located between the source water treatment plant, or the source if there is no treatment, and the consumer's service connection.

Authority: Section 116375, Health and Safety Code

Reference: Sections 116275 and 116550, Health and Safety Code.

Section 64551.20 Distribution reservoir.

"Distribution reservoir" means any tank or other structure located within or connected to the distribution system and used to store drinking water.

Authority: Section 116375 Health and Safety Code
Reference: Sections 116275 and 116550 Health and Safety Code

Section 64551.30 Maximum day demand.

"Maximum day demand" means the amount of water utilized by consumers during the highest day of use during the previous five years.

Authority: Section 116375 Health and Safety Code
Reference: Sections 116275 and 116550 Health and Safety Code

Section 64551.40 Sustained well yield.

"Sustained well yield" means the amount of water that a well can reliably be expected to produce on a continuous basis without adversely affecting the level of the groundwater in the aquifer**.**

Authority: Section 116375 Health and Safety Code
Reference: Sections 116275 and 116550 Health and Safety Code

Section 64551.50 Transmission main.

"Transmission main" means any water main that does not directly serve any service connections and is used primarily to convey water from the source or treatment plant to the distribution system or from one section of the distribution system to another section.

Authority: Section 116375 Health and Safety Code
Reference: Sections 116275 and 116550 Health and Safety Code

Section 64551.60 User service line.

"User service line" means the pipe and fittings connecting a water main to an individual water meter or service connection.

Authority: Section 116375 Health and Safety Code
Reference: Sections 116275 and 116550 Health and Safety Code

Section 64551.70 Water main.

"Water main" means any pipeline, except for user service lines, within the distribution system that serves or is intended to serve drinking water to multiple users.

Authority: Section 116375 Health and Safety Code
Reference: Sections 116275 and 116550 Health and Safety Code

ARTICLE 2. PLANNING AND PERMIT REQUIREMENTS

Section 64552. Permit Amendments

(a) Except as set forth in subsection (b) any modifications or extensions to an existing distribution system may be made without applying for and receiving an amended domestic water supply permit provided the modifications comply with all of the requirements of this chapter.

(b) An amendment to the existing permit shall be required whenever any existing community water system proposes to expand their service area such that the resultant expansion would cause the number of service connections or the annual volume of water delivered by the system to be increased by more than 10 percent.

(c) A public water system applying for an initial or amended domestic water supply permit may propose an alternative to any of the requirements of this chapter provided that the water system's proposal includes additional mitigation measures to assure that the alternative proposed does not result in an increased risk to public health. No modification or extension of an existing distribution system using an equivalent alternative shall be made without receiving an amended domestic water supply permit from the department.

(d) Community water systems shall comply with all requirements of this chapter.

(e) Noncommunity water systems shall comply with all requirements of this chapter except Sections 64553, 64554 (a) (5) and (b), 64561, 64573, 64574, 64575, 64577, 64578, 64600, and 64602.

Authority: Section 116375 Health and Safety Code
Reference: Sections 116275 and 116550 Health and Safety Code

Section 64553 Planning For Adequate Source Capacity

(a) Each community water system shall submit to the Department a report containing the following information:

(1) The anticipated growth of the water system over a projected ten year period in terms of the population and number and type of residential, commercial, and industrial service connections to be served by the water system.

(2) Estimates of the amount of water needed to serve the annual and the maximum day demand over the projected ten year growth period. Methods, assumptions, and calculations used to determine the amount of water needed shall be included.

(3) Description of the sources currently used, or proposed to be used, to meet the projected water demand including:

(A) A description of any valid water rights owned by the system for surface water sources.

(B) A description of the groundwater aquifer used, or proposed to be used, as a source of groundwater including groundwater levels and drawdown patterns.

(C) Any permits or approvals for groundwater extraction if pumping from an adjudicated groundwater basin.

(D) Existing source pumping capability and distribution storage capacity.

(E) The calculated sustained well yields of existing wells if groundwater sources are used.

(b) Community water systems serving more than 3,300 persons shall submit the report specified in subsection (a) no later than January 1, 2003.

(c) Within one year from the date upon which the system receives a written directive from the Department requiring the submission of the report specified in subsection (a), community water systems serving less than 3,300 persons shall do one of the following:

(1) Submit the required report, or

(2) Submit a written request to the Department requesting the Department to prepare the initial report for the water system at no cost to the system

(d) Each community water system shall update the information required by subsection (a) and submit an updated report to the Department every five years from the date of the submission of the initial report.

(e) Water systems that have submitted an Urban Water Management Plan to the Department of Water Resources pursuant to Water Code Part 2.6 commencing with section 10610, may submit a copy of that report in lieu of some or all of the requirements of subsection (a) to the extent such information is included in the plan.

Authority: Section 116375 Health and Safety Code
Reference: Sections 116275 and 116555, Health and Safety Code

Section 64554. Permit Requirements for New Water Systems

(a) Any new public water system applying for an initial domestic water supply permit shall submit the following information as part of the application for the initial domestic water supply permit:

(1) The anticipated growth of the water system over a projected 10 year period in terms of the population and number and type of residential, commercial, and industrial service connections to be served by the system.

(2) Estimates of the amount of water needed to serve the maximum day demand over the projected 10 year growth. Methods, assumptions, and calculations used to determine the amount of water needed shall be included.

(3) A description of the sources of water proposed for use to meet the projected demand and information demonstrating that the sources are adequate to meet the projected maximum daily demand over the 10 year period. If surface water will be used, the system shall demonstrate that the system holds a valid water right to that amount of water. If groundwater is to be used, the system shall demonstrate that the groundwater aquifer is sufficient, or that approval has been obtained in the case of adjudicated groundwater basins, to allow that amount of sustained withdrawal.

(4) Information that demonstrates that the existing or planned source pumping capacity, as well as the sustained well yield if groundwater sources are used, are adequate to serve the maximum day demand for the number of service connections or the number of persons to be covered by the permit.

(5) Information that demonstrates that the distribution system contains, or will contain, distribution reservoirs with sufficient storage capacity to meet the anticipated maximum day demand (expressed as gallons per minute) for a period of at least eight hours.

(b) For community water systems applying for an initial permit, the information required pursuant to subsection (a) shall be prepared by a professional civil engineer registered in the State of California with experience in water supply engineering.

Authority: Section 116375 Health and Safety Code
Reference: Sections 116275 and 116555, Health and Safety Code

ARTICLE 3. WATER SOURCES

Section 64560. Well Construction

(a) Each new public water supply well shall:

(1) Be constructed in accordance with the California Department of Water Resources Bulletins 74-81 and 74-90.

(2) Be equipped with fittings and electrical connections to enable chlorination facilities to be readily installed.

(3) Be equipped with a sampling tap located on the discharge line between the discharge check valve and the chlorine injection port.

(4) Include waste discharge provisions to allow the well to be pumped to waste. A check valve, or comparable device, shall be installed on the waste discharge line to prevent backflow.

(b) New public water supply well heads located in designated flood zones shall be located above the 100 year flood level.

(c) A screened and inverted casing vent shall be maintained on all public water supply wells. The maximum size opening in the screening shall not exceed 1/8 inch. The opening of the vent shall be located no less than 18 inches above the ground.

Authority: Section 116375 Health and Safety Code
Reference: Sections 116275 and 116550 Health and Safety Code

Section 64561. Master Flow Meters

Each community water system shall install a flow meter at a location between each water source, except for emergency or standby sources, and the entry point into the distribution system. The quantity of water flow from each source shall be continuously metered in order to determine total production. The total monthly production from each source shall be determined and recorded at least once per month.

Authority: Section 116375 Health and Safety Code
Reference: Sections 116275 and 116555, Health and Safety Code

Section 64563. Determination of Sustained Well Yield

(a) The sustained well yield of a well drilled into alluvial soils shall be determined from actual pumping records, if available, or from a pump test conducted as follows:

The well shall be pumped continually using a constant rate of water discharge until at least four consecutive measurements of water level drawdown in the well, taken at least one hour apart, and the elapsed time since the beginning of the pump test yield a straight line when the drawdown is plotted against the logarithm of the elapsed time.

(b) The final sustained yield to be credited to a well drilled in hard rock, or of a spring, shall be determined from actual pumping records covering a period of at least one year.

Authority: Section 116375 Health and Safety Code
Reference: Sections 116275 and 116555, Health and Safety Code

ARTICLE 4. INSTALLATION OF WATER MAINS AND APPURTENANCES

Section 64570. Allowable Materials

(a) No water main or distribution storage tank coatings or linings, gaskets or sealing materials, or joint compounds, or tank materials in unlined or uncoated tanks shall be used in connection with any new construction in the distribution system unless such products or materials have been tested and certified as meeting the specifications of the 1995 edition of the American National Standard Institute/National Sanitation Foundation Standard 61. This requirement shall be met under testing conducted by a product certification organization accredited for this purpose by the American National Standards Institute.

(b) All new water mains installed in the distribution system shall comply with the standards of the American Water Works Association as set forth in the following table:

Type of Material	Diameter of Main	Applicable Standard
PVC	4 in. through 12 in.	C900-89, C900a-2
PVC	14 in. through 36 in.	C905-88
Polyethylene	4 in. through 63 in.	C906-90
Fiberglass	All sizes	C950-88
Ductile Iron	All sizes	C150/A21.50-91
Steel	All sizes	C200-91
Concrete	Reinforced steel-cylinder (all sizes)	C300-93
Concrete	Prestressed steel-cylinder (all sizes)	C301-92, C304-92
Concrete	Reinforced noncylinder (all sizes)	C302-95
Concrete	Bar wrapped, steel cylinder (all sizes)	C303-95

Authority: Section 116375 Health and Safety Code
Reference: Sections 4010.1 (0) and 116550 Health and Safety Code

Section 64572. Water Main Separation

(a) Water mains shall be installed at least 10 feet horizontally from, and one foot vertically above, any parallel pipeline conveying untreated, primary or secondary treated sewage, or recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed a most probable number (MPN) of 23 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed and the number of total coliform bacteria does not exceed an MPN of 240 per 100 milliliters in more than one sample in any 30 day period..

(b) Water mains shall be installed at least four horizontal feet from any pipeline conveying treated wastewater or recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed an MPN of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed and the number of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30 day period.

(c) No public water system shall install a water main within 100 horizontal feet of any sanitary landfill, wastewater disposal pond, or hazardous waste disposal site, or within 25 feet of any cesspool, septic tank, sewage leach field or seepage pit.

(d) Water mains crossing lines conveying sewage or recycled water shall be constructed perpendicular to and at least one foot above the sewage or recycled water line. No connection joints shall be made in the water line within nine horizontal feet of the wastewater or recycled water line.

(e) The minimum separation distances set forth in this section shall be measured from the nearest outside edge of each pipe.

Authority: Section 116375 Health and Safety Code
Reference: Sections 116275 and 116550 Health and Safety Code

Section 64573. Minimum Water Main Size

No community water system shall install water mains with an inside diameter of less than four inches.

Authority: Section 116375 Health and Safety Code
Reference: Sections 116275 and 116550 Health and Safety Code

Section 64574. Cold Weather Protection

Water mains shall be installed below the frost line or shall otherwise be protected to prevent freezing.

Authority: Section 116375 Health and Safety Code
Reference: Sections 116275 and 116550 Health and Safety Code

Section 64575. Flushing

(a) A flushing valve or blowoff shall be provided at the end of each newly installed dead-end water main.

(b) Flushing valves and blowoffs shall not discharge to a sanitary sewer without an air gap separation between the sewer and the valve or blowoff.

(c) Flushing valves and blowoffs shall be designed to maintain the minimum continuous flushing flows indicated below:

Nominal Inside Main Diameter (inches)	Minimum Flushing Flow (gallons per minute)
2	25
3	50
4	100
6	225
8	400
10 or more	600

Authority: Section 116375 Health and Safety Code
Reference: Sections 116275 and 116550 Health and Safety Code

Section 64576. Air Release Valves

Vent openings for air and vacuum relief and air release valves shall be

(a) Extended at least one foot above grade and above the maximum recorded high water level; and

(b) Provided with a screened, downward facing, vent opening equipped with a mesh screen. The maximum size opening in the screen shall not exceed 1/8 inch.

Authority: Section 116375 Health and Safety Code
Reference: Sections 116275 and 116550 Health and Safety Code

Section 64577. Isolation Valves

As a minimum, isolation valves shall be installed on all new water mains at the following locations within the distribution system:

(a) No farther than 1,320 linear feet apart on all water mains having a diameter of 12 inches or less.

(b) At each tee or crossing connection between mains. An isolation valve shall be installed on each cross main, that has a diameter of 12 inches or less, within 100 feet of the tee or crossing connection with the primary main.

(c) Between the water main and each fire hydrant served by the water main.

Authority: Section 116375 Health and Safety Code
Reference: Sections 116275 and 116550 Health and Safety Code

Section 64578. Water Main Valve Construction

Valves constructed on new water mains shall comply with the following:

(a) A valve box shall be installed over each buried valve stem to aid in locating and operating the valve.

(b) Valves buried in trenches greater than five feet below the finished grade shall have either a valve stem riser to permit the use of a normal key or a notation on valve records indicating that a long key will be required.

(c) Gate valves shall be installed in the vertical position unless they are designed to operate in other positions.

Authority: Section 116375 Health and Safety Code
Reference: Sections 116275 and 116550 Health and Safety Code

ARTICLE 5. DISINFECTION REQUIREMENTS

Section 64580. Disinfection of New or Repaired Mains

Newly installed water mains, or water mains that have been taken out of service for maintenance or repair, shall be disinfected and sampled in accordance with American Water Works Association Standard C-651-92.

Authority: Section 116375 Health and Safety Code
Reference: Sections 116275 and 116550 Health and Safety Code

Section 64582. Disinfection of Reservoirs

Newly installed distribution reservoirs or distribution reservoirs that have been taken out of service for repair shall be disinfected and sampled for bacteriological quality in accordance with the American Water Works Association Standard C-652-92 "Disinfection of Water Storage Facilities". The samples shall be negative for coliform bacteria prior to the reservoir being placed into service.

Authority: Section 116375 Health and Safety Code
Reference: Sections 116275 and 116550 Health and Safety Code

Section 64583. Disinfection of Wells

A new or repaired well, or a well that has been out of service for more than four continuous months, shall be disinfected in accordance with the American Water Works Association Standard C-654-87 before being placed into service. The results of the bacteriological sampling of the well shall be negative for coliform bacteria prior to use of the well.

Authority: Section 1163576 Health and Safety Code
Reference: Sections 116275 and 116550 Health and Safety Code

ARTICLE 6. DISTRIBUTION RESERVOIRS

Section 64585. Design and Construction

(a) All new distribution reservoirs shall require an amended domestic water supply permit and shall be:

(1) Constructed of an impervious material and covered with a rigid structural roof made of impervious material.

(2) Equipped with at least one separate inlet and outlet located and designed to minimize short-circuiting of the water flow through the reservoir.

(3) Designed to allow ready access into the reservoir for inspections, cleaning or repair. Each distribution reservoir located above ground shall be equipped with a ladder to allow access to the entry opening. The ladder shall be protected to prevent use by unauthorized persons and the access hatch shall be kept locked except during use.

(4) Equipped with isolation valves to enable the reservoir to be removed from service. The isolation valves shall be located within 100 feet of the reservoir.

(5) Designed and constructed to prevent the entry of surface runoff or drainage into the reservoir.

(b) Reservoir coatings or linings, if used, shall be installed in accordance with manufacturer's instructions.

(c) Vents and other openings shall be constructed and screened to prevent the entry of birds, rodents or other animals. The size of the openings in the screen shall not exceed 1/8 inch. Vents and other openings shall be designed to prevent the entry of rainwater or runoff.

(d) Each distribution reservoir outlet shall be equipped with at least one sampling tap that provides representative sampling of the water in the reservoir.

(e) Each distribution reservoir shall be equipped with an overflow device and drainage facilities. The drainage facilities shall allow the tank to be fully drained.

Authority: Section 116375 Health and Safety Code
Reference: Sections 116275 and 116550 Health and Safety Code

ARTICLE 7. DISTRIBUTION SYSTEM OPERATION

Section 64600. Distribution System Operations Plan

(a) No later than January 1, 2003, each community water system serving more than 3,300 persons shall develop and submit to the Department a distribution system operation and maintenance plan describing the following:

(1) The schedule that the system intends to follow for flushing dead end mains and the procedures for disposal of the flushed water.

(2) The schedule for routine inspection of reservoirs and the procedures for cleaning reservoirs.

(3) The schedule and procedures for inspecting, repairing, and replacing water mains.

(4) The plan for responding to water supply emergencies.

(5) The plan and procedures for responding to consumer complaints.

(6) The procedures for testing backflow prevention devices.

(7) The schedule and procedures for routine exercising of water main valves.

(8) The schedule and program for maintenance and calibration of master flow meters.

(9) The qualifications and training of operating personnel.

(10) The program for biofilm control in water mains (for systems serving more than 3,300 persons).

(b) No later than January 1, 2003, each community water system serving less than 3,300 persons shall do one of the following:

(1) Submit an operations plan as specified in subsection (a), or

(2) Submit a written request to the Department to have the Department prepare the initial operations plan for the system at no cost to the system.

(c) The operations plan prepared pursuant to subsections (a) or (b) shall be updated by the water system at least every five years from the date of the submission of the initial plan.

Authority: Section 116375 Health and Safety Code
Reference: Sections 116275 and 116550 Health and Safety Code

Section 64602. Minimum Pressure

(a) Distribution systems of all community water systems shall be designed to provide a minimum operating pressure throughout the distribution system of not less than 40 pounds per square inch at all times.

(b) Distribution systems of all community water systems shall be operated in a manner to assure that the minimum operating pressure throughout the distribution system is not less than 20 pounds per square inch at all times.

Authority: Section 116375 Health and Safety Code
Reference: Sections 4010.1 (o), 4017 (b) and 116550 Health and Safety Code

Section 64604. Maintenance of Records

(a) Each public water system subject to this chapter shall prepare:

(1) "As built" plans, maps or drawings of all new water system facilities. The plans, maps, or drawings shall be clear and legible, shall be drawn to scale, and shall include the location, size, construction material, and year of installation of each new water main or other facility.

(2) A schematic drawing or map showing the location of each water source, treatment facility, pumping plant, reservoir, water main and isolation valve.

(b) The plans, drawings, and maps prepared pursuant to subsection (a) shall be maintained until replaced or superceded by updated plans or drawings.

(c) Results of laboratory analyses of samples taken pursuant to sections 64580, 64582, 64583, 64586, records of flushing of mains; and records of reservoir inspections and cleaning shall be maintained for at least three years.

Authority: Section 116375 Health and Safety Code
Reference: Sections 116275 and 116550 Health and Safety Code